

ABSTRACT OF THE DISCLOSURE

A method and system for directly measuring and controlling the amplitude of an ultrasonic horn comprising an ultrasonic horn, a non-contact measurement device for directly measuring an amplitude of the ultrasonic horn, and a controller for modulating the amplitude of the ultrasonic horn in communication with the non-contact measurement device. In accordance with the noncontact optical detection embodiments, the non-contact measurement device is an optical system in which one of a coherent or noncoherent light beam is transmitted from a light source onto a surface of the ultrasonic horn, generating reflected light at a photodetector. The photodetector produces an output signal proportional to at least one of the intensity or the location of the light spot. Detector output is then correlated to the amplitude of the ultrasonic horn and input to a controller for controlling the amplitude of the ultrasonic horn in real time.